EOS Science Networks Performance Report

This is a summary of EOS QA SCF performance testing for April and May 2003 -- comparing the performance against the requirements from BAH, including Terra, TRMM, and QuikScat, Aqua, ADEOS II, Aura, SAGE III, and ICESat requirements

Up to date graphical results can be found on the EOS network performance web site (now pretty stable): http://corn.eos.nasa.gov/networks (Then click on a category next to "Active Testing"). Or use the links to the individual site results in the site details section.

Highlights:

- Testing from LaTIS node restored on 30 April – it had been down since 6 March. Performance from LaTIS to most destinations was better than before the reconfiguration.
- Otherwise, mostly stable performance, with some improvement.

Change History:

- February 2003: Another requirements update from BAH– no major changes
- December 2002: Updated to latest BAH requirements, based on Handbook v1.2. Includes additional missions.
- June 2001: The requirements were modified to incorporate an updated number of EOS funded users at each tested site, based on the latest SPSO database. The total number of users increased in this way from 434 to 1012 (US only).
- May 2001: The requirements were increased by adding a 50% contingency factor to all QA and SIPS requirements, which were omitted with the change to the new BAH requirements in March 2001.

Ratings:

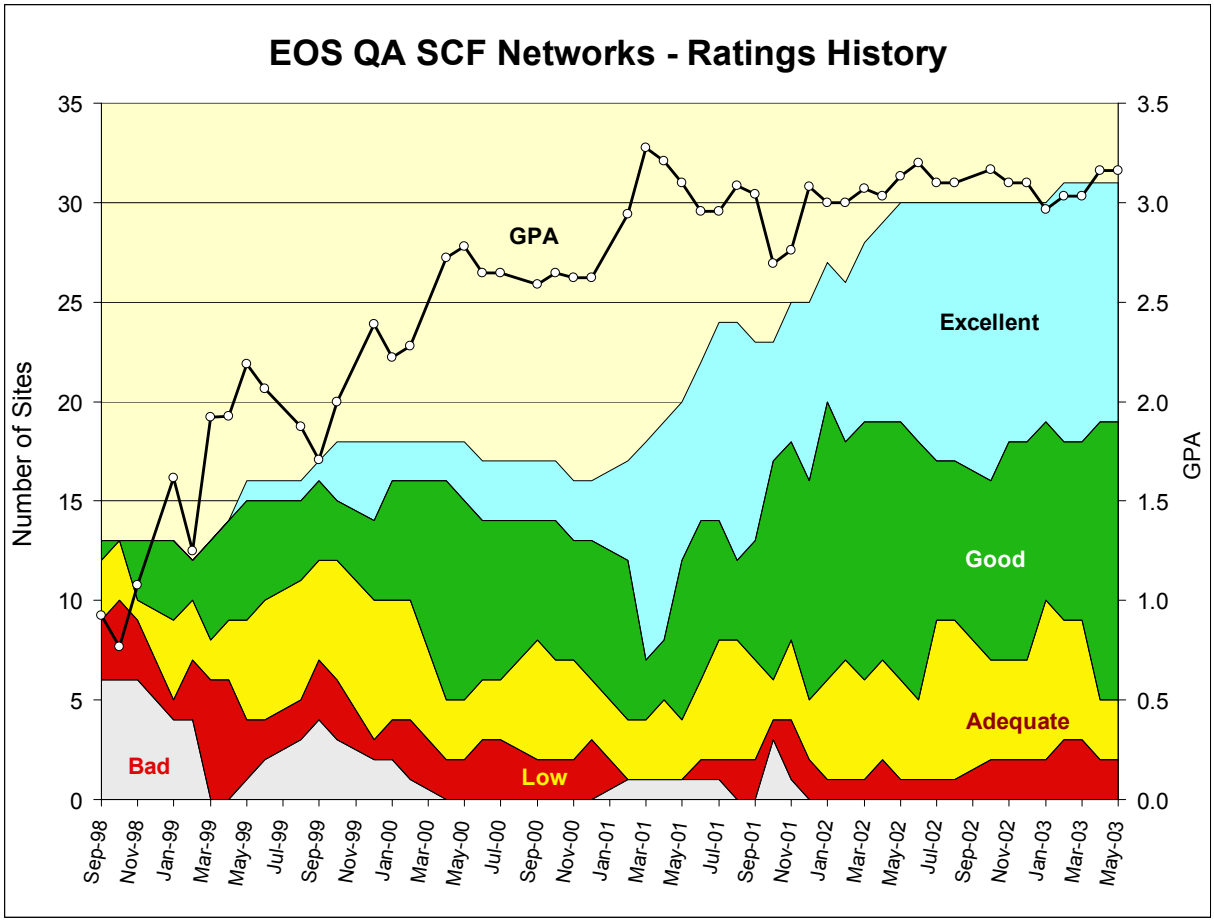
Rating Categories:

Excellent: median of daily worst cases > 3 x requirement
Good: median of daily worst cases > requirement

Adequate: median of daily worst cases < requirement
and
median of daily medians > requirement

Low: median of daily medians < requirement.
Bad: median of daily medians < 1/3 of the requirement.

The chart below shows the number of sites in each classification since the testing started in 1998. Note that these ratings do NOT relate to absolute performance -- they are relative to the EOS requirements. The GPA is calculated based on Excellent: 4, Good: 3, Adequate: 2, Low: 1, Bad: 0



Ratings Changes:

Upgrades: ↑

NSSTC: Good → **Excellent**
Colo State: Adequate → **Good**
Oregon State: Adequate → **Good**
LaRC → Wisconsin: Low → **Adequate**
INPE: Low → **Good**
UCL: Adequate → **Good**

Downgrades: ↓

LANL: Excellent → **Good**
PNNL: Excellent → **Good**

EOS QA SCF Sites:

Network Requirements vs. Measured Performance

May 2003		Requirements (kbps)			Testing							
Destination	Team (s)	Previous:	Current:	Future:	Source Node: Test Period	Median	Median Daily	Rating re Current Requirements		Rating re		
		Oct-01	Oct-02	Oct-03		kbps	Worst	Oct-02	Prev	Oct-03	Route Tested	Upgrade
AL, NSSTC (UAH)	CERES, AMSR	2154	2629	4878	LaTIS: 30-Apr-03 - 31-May-03	13860	10877	Excellent	G	GOOD	NISN + FDDI	
AZ, Tucson (U of AZ)	MODIS, ~~MISR~~	2506	2689	2750	EDC: 01-Mar-03 - 31-May-03	11917	7795	GOOD	G	GOOD	Abilene via MAX	
CA, JPL (from LaRC)	MISR	11192	18484	18484	LDAAC-->MISR-ATM: 01-Feb-03 - 31-May-03	14466	2950	LOW	L	LOW	NISN Private VC	Increase VC
CA, JPL (from GSFC)	AIRS, TES, others	16623	17612	24798	GDAAC-->AIRS: 26-Sep-02 - 31-May-03	14779	5702	LOW	L	LOW	NISN SIP	Increase VC
CA, RSS	AMSR	376	1156	1926	JPL PODAAC: 08-Aug-02 - 31-May-03	2223	1405	GOOD	G	Adequate	2 * T1 - Consolidated	
CA, UCSB	MODIS	2013	2681	2903	GDAAC: 01-Mar-03 - 31-May-03	18935	15595	Excellent	E	Excellent	Abilene via MAX	
CA, UCSD - SIO	ICESAT, CERES	6225	6478	6478	GSFC-ICESAT: 01-Apr-03 - 31-May-03	12394	6180	Adequate	A	Adequate	Abilene via NISN / MAX	
CO, Colo State Univ	CERES	1665	1952	2049	LaTIS: 30-Apr-03 - 31-May-03	4546	3970	GOOD	A	GOOD	NISN -> Abilene	host interface
CO, NCAR - Boulder	MOPITT, HIRDLS	2102	2438	2438	LaRC DAAC: 01-Apr-03 - 31-May-03	18077	7058	GOOD	G	GOOD	NISN -> Abilene	
FL, Univ. of Miami	MODIS, MISR	9661	15158	16991	GSFC: 05-Jan-03 - 31-May-03	40989	12292	Adequate	A	Adequate	Abilene via MAX	
IL, UIUC	MISR	1134	1133	1133								
MA, Boston Univ	MODIS, MISR	1767	2528	2781	EDC DAAC: 21-May-03 - 31-May-03	16369	13779	Excellent	E	Excellent	Abilene via vBNS+	
MA, MIT	ICESAT	5495	6378	6378	GSFC -ICESAT: 04-Mar-03 - 31-May-03	49436	23893	Excellent	E	Excellent	Abilene via NISN / MAX	
MD, UMD-College Park	MODIS	1969	2011	2025	GSFC-MAX: 08-Apr-03 - 31-May-03	123007	112144	Excellent	E	Excellent	Direct Fiber	
MT, Univ of Montana	MODIS	459	675	747	EDC DAAC: 03-Jan-03 - 31-May-03	24206	12148	Excellent	E	Excellent	Abilene via vBNS+	
NM, LANL	MISR	616	1033	1033	LaRC DAAC: 30-Apr-03 - 31-May-03	6352	2063	GOOD	E	GOOD	NISN -> ESNet via CA	
NY, SUNY Stony Brook	CERES	536	558	566	LaTIS: 30-Apr-03 - 31-May-03	13598	8792	Excellent	E	Excellent	NISN -> Abilene via Chicago	
OH, Ohio State Univ	ICESAT	5425	5678	5678	GSFC-ICESAT: 04-Mar-03 - 31-May-03	32466	10901	GOOD	G	GOOD	Abilene via NISN / MAX	
OR, Oregon State Univ	CERES, MODIS	4390	6292	6929	LaTIS: 30-Apr-03 - 31-May-03	11956	7872	GOOD	A	GOOD	NISN -> Abilene	
PA, Penn State	MISR	2121	2642	2642	LaRC DAAC: 01-Mar-03 - 31-May-03	19172	9786	Excellent	E	Excellent	NISN -> Abilene	
TX, Texas A & M	AMSR-E	4390	6292	6929								
TX, U Texas-Austin	ICESAT	8755	10430	10430	GSFC-ICESAT: 04-Mar-03 - 31-May-03	28087	13118	GOOD	G	GOOD	Abilene via NISN / MAX	
VA, LaRC - SAGE III MOC	SAGE III	200	200	200	GSFC-CSAFS: 19-Feb-03 - 31-May-03	6919	2648	Excellent	E	Excellent	NISN SIP	
WA, NOAA PNNL	MISR	921	1442	1442	LaRC DAAC: 22-Mar-03 - 31-May-03	13052	2941	GOOD	E	GOOD	NISN -> ESNet via Chicago	
WA, U Washington	ICESAT	10920	11003	11003	GSFC-ICESAT: 10-Mar-03 - 31-May-03	36937	13068	GOOD	G	GOOD	Abilene via NISN / MAX	
WI, U of Wisc.	MODIS, CERES, AIRS	8360	13114	14788	GSFC-MODIS: 01-Mar-03 - 31-May-03	53827	15163	GOOD	G	GOOD	Abilene via MAX	
Brazil, INPE	HSB	622	1024	1024	GSFC: 14-May-03 - 31-May-03	3643	2382	GOOD	L	GOOD	Abilene -> AMpath-> ANSP	
Canada, U. of Toronto	MOPITT	456	612	612	LARC DAAC: 01-Nov-02 - 31-May-03	1423	1112	GOOD	G	GOOD	NISN T1	NISN-CA*net4
France, Palaiseau	CERES	203	205	206								
Italy, Ispra (JRC)	MISR	308	517	517	LaRC DAAC: 13-Mar-02 - 31-May-03	700	106	Adequate	A	Adequate	NISN-UUNET-Milan	
Netherlands (KNMI)	OMI	0	0	1024	GSFC: 11-Feb-03 - 31-May-03	72371	53493	Excellent	E	Excellent	Abilene --> Chi -> Surfnet	
Russia, Moscow (CAO)	SAGE III	26	26	26	CAO-->LaRC-N: 04-Jul-02 - 31-May-03	157	145	Excellent	E	Excellent	NISN -> Moscow	
UK, Oxford	HIRDLS	0	0	512	GSFC: 12-Mar-03 - 31-May-03	3395	3093	Excellent	E	Excellent	Abilene->JAnet (NY)	
UK, London (UCL)	MISR, MODIS	616	1033	1033	LDAAC-->UCL-SCF: 12-May-03 - 31-May-03	6174	2395	GOOD	A	GOOD	Abilene->JAnet (NY)	

*Rating Criteria:		Rating	Current Oct-02	Prev Month	Future: Oct-03
Excellent	Median of Daily worst hours >= 3 *Requirement	Excellent	12	13	11
GOOD	Median of Daily worst hours >= Requirement	GOOD	14	9	14
Adequate	Median of Daily worst hours < Requirement <= Median of Daily Medians	Adequate	3	6	4
LOW	Requirement > Median of Daily Medians	LOW	2	3	2
BAD	Requirement > 3 * Median of Daily Medians	BAD	0	0	0
		Total	31	31	31
		GPA	3.16	3.03	3.10

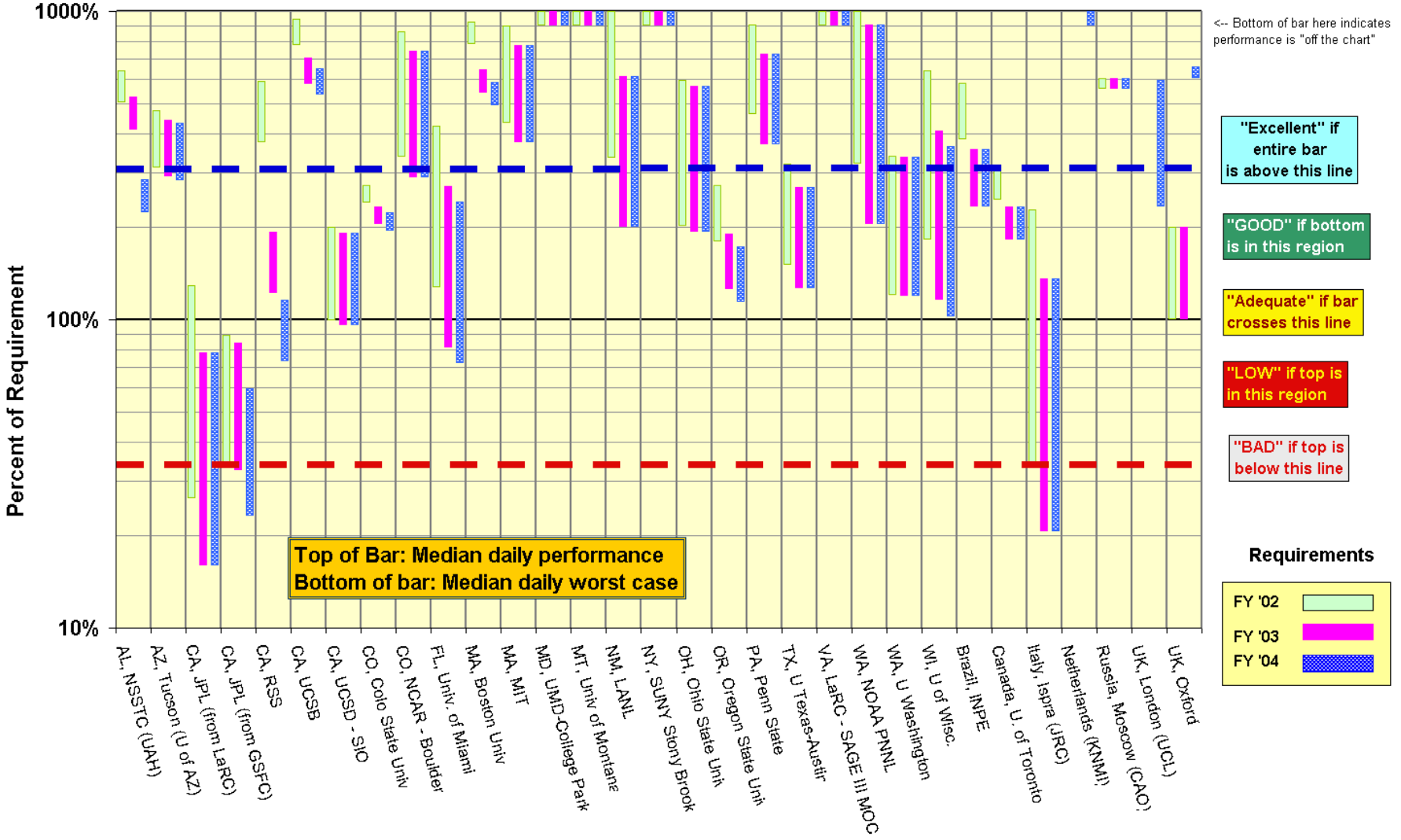
Change History:		
8-Jun-98	Original	
10-Jul-98	Incorporated new MISR QA flows	
10-Sep-98	Added % of requirements columns and associated chart	
28-Oct-99	Added Previous Status Column	
1-Jul-00	Added "Excellent" Status, Ratings Summary Chart	
10-Apr-01	Updated requirements with BAH, added additional sites and missions	
7-Jun-01	Added ICESAT sites and requirements, added contingency to QA and SIPS	
13-Jul-01	Updated requirements for latest # of users	
10-Jan-03	Updated requirements with BAH	

A. Germain

Printed 6/20/2003

EOS QA SCF Sites

Daily Median and Worst Performance as a percent of Requirements



Details on individual sites:

Each site listed below is the DESTINATION for all the results reported in that section. The first test listed is the one on which the rating is based -- it is from the source most relevant to the driving requirement. Other tests are also listed. The three values listed are derived from [nominally] 24 tests per day. For each day, a daily best, worst, and median is obtained. The values shown below are the medians of those values over the test period.

1) AL, NSSTC (UAH) (aka GHCC)

Rating: ↑ Good → **Excellent**

Teams: CERES, AMSR
Domain: nsstc.uah.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/NSSTC.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC LaTIS	14.4	13.9	10.9	NISN SIP
GSFC	23.4	22.7	15.2	NISN SIP

Requirements:

Source Node	FY	mbps	Rating
LaRC LaTIS	'03	2.6	**Excellent**
LaRC LaTIS	'04	4.9	**Good**

Comments: Thruput from LaTIS improved after the LaTIS node was restored on 30 April, improving the rating to "Excellent" for FY '03. Thruput from GSFC also improved 18 April – median was 18.8 mbps before that.

---

2) AZ, Tucson (U of AZ):

Rating: Continued **Good**

Teams: MODIS
Domain: arizona.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/ARIZONA.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EDC LPDAAC	14.2	11.9	7.8	Abilene via vBNS+ / Chicago
GSFC	13.9	11.0	6.3	Abilene via MAX
LaRC	22.9	16.7	6.3	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
EDC LPDAAC	'03, '04	2.7	**Good**

Comments: The ratings are based on the MODIS flow from EDC (There is no longer a requirement from LaRC, as the MISR team has all moved away from Arizona).

Performance was more stable in April and May, with minor improvement in the measurements. The thruput from EDC is close to an "Excellent" rating.

3) CA, JPL:

Ratings: GSFC: Continued **Low**
LaRC: Continued **Low**

Teams: MISR, AIRS, TES, MLS, ASTER
Domain: jpl.nasa.gov
Web Pages: http://corn.eos.nasa.gov/performance/Net_Health/files/JPL-MISR.html
http://corn.eos.nasa.gov/performance/Net_Health/files/JPL-AIRS.html

Test Results:

Source → Dest	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC → MISR	16.3	14.5	3.0	NISN ATM PVC
LaRC DAAC → MISR	19.6	12.1	1.8	NISN SIP
GSFC DAAC → AIRS	17.7	14.8	5.7	NISN SIP
GSFC → MISR	12.8	12.2	10.7	NISN PIP

Requirements:

Source Node	FY	mbps	Prev Req	Rating
LaRC DAAC	'02, '03, '04	11.2, 18.5, 18.5	11.2, 13.6, 13.6	Low
GSFC DAAC	'02, '03, 04	16.6, 17.6, 24.8	16.6, 15.7, 18.5	Low

Comments:. Performance from LaRC via the NISN private ATM VC between LaRC and MISR steady since it recovered on 22 November '02. However, the median is below the revised FY '03 requirement, so the rating remains "Low".

Performance between these same nodes via NISN SIP appears long term stable, but more short term variable.

Testing to AIRS is from GDAAC, which uses SIP. Thruput from GDAAC to JPL-AIRS has been steady since September '02, but the daily median is still below the requirement, thus a FY'02-'04 rating of "LOW".

Testing from the GSFC campus to JPL has been routed via NISN PIP since September '02, with very steady performance.

Note: the design of this connectivity is under review, and some of these flows may be placed on EMSnet.

---

4) CA, RSS: (Santa Rosa):

Ratings: Continued **Good**

Teams: AMSR
Domain: remss.com
Web page: http://corn.eos.nasa.gov/performance/Net_Health/files/RSS.html

Test Results:

Source Node	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
JPL PODAAC	2762	2223	1405	NISN SIP: 2 x T1

Requirements:

Source Node	FY	kbps	Rating
JPL PODAAC	'02	376	Excellent
JPL PODAAC	'03	1156	Good
JPL PODAAC	'04	1926	Adequate

Comments: Performance has been very stable since August '02, as good as can be expected from a pair of T1s. The median daily worst was well above 3 x the FY '02 requirement, but with the increased FY'03 and '04 requirements, the rating drops to "Good" for FY'03 and "Adequate" for FY'04.

Note: RSS also has a requirement to flow data to NSSTC (see #1). This is not tested yet. The requirement is 900 kbps in FY '03, but grows to 3.1 mbps in FY'04 and 4.4 mbps in FY'05. While the FY'03 requirement is achievable with the 2 x T1 configuration, the FY'03 and '04 flows are not.

5) CA, UCSB :

Ratings: GSFC: Continued **Excellent**
EDC: Continued **Excellent**

Teams: MODIS
Domain: s2k.ucsb.edu
Web page: http://corn.eos.nasa.gov/performance/Net_Health/files/UCSB.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-DAAC	37.6	18.9	15.6	Abilene via NISN / MAX
EDC-LPDAAC	20.3	18.8	16.7	Abilene via vBNS+ / Chicago

Requirements:

Source Node	FY	mbps	Rating
GSFC-DAAC	'02, '03, '04	2.0, 2.7, 2.9	**Excellent**
EDC-LPDAAC	'02, '03, '04	1.6, 1.9, 2.1	**Excellent**

Comments: The requirements are split between EDC and GSFC. Performance from EDC is very steady. From GSFC there are two Abilene routes used. The most common route (which dominates the median calculations) is via Chicago, with performance about the same as from EDC (which always is routed via Chicago). But sometimes traffic from GSFC is routed on Abilene via Atlanta, so it enters CalREN at a different point, and gets much higher thruput – peaks 50-60 mbps. The rating remains "Excellent" from both sources.

---

6) CA, UCSD (SIO) :

Ratings: GSFC: Continued **Adequate**
LaTIS: Continued **Excellent**

Teams: CERES, ICESAT
Domain: ucsd.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/UCSD.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	19.7	12.4	6.2	Abilene via NISN / MAX
LaTIS	26.4	25.1	19.8	Abilene via NISN / Chi

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03, '04	6.2, 6.5, 6.5	**Adequate**
LaTIS	'02, '03, '04	0.26	**Excellent**

Comments: The rating is based on testing from the ICESAT SCF at GSFC. Performance was stable in this period. Thruput from GSFC was not quite enough to improve the "Adequate" rating. Performance from LaTIS improved after the LaTIS test node was restored on 30 April – the median prior to that was 13.5 mbps. The CERES requirements are much lower than ICESAT, so the LaTIS rating continues as "Excellent".

7) CO, Colo State Univ.:

Rating: ↑ Adequate → Good
Teams: CERES
Domain: colostate.edu
Web page: http://corn.eos.nasa.gov/performance/Net_Health/files/COLO-ST.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	4.7	4.5	4.0	Abilene via NISN / Chicago
GSFC	7.2	7.1	6.4	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'02, '03, '04	1.67, 1.95, 2.05	Adequate

Comments: Performance from LaTIS got much more stable and less noisy after the LaTIS test node was restored on 30 April The daily worst is now above the requirement for '02 through '04, so the rating improves to "Good". Performance from GSFC was very steady—would rate as "Excellent". The thruput limitation is the CSU 10M Ethernet LAN.

---

8) CO, NCAR:

Ratings: LaRC: Continued Good
GSFC: Continued Excellent
Teams: MOPITT, HIRDLS
Domain: scd.ucar.edu
Web page: http://corn.eos.nasa.gov/performance/Net_Health/files/NCAR.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	25.9	18.1	7.1	Abilene via NISN / Chicago
GSFC-MAX	70.1	64.4	42.1	Abilene via MAX
EDC	84.0	71.7	62.8	Abilene via vBNS+ / Chicago

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'02, '03, '04	2.1, 2.4, 2.4	Good
GSFC	'02, '03, '04	2.3, 2.6, 3.1	Excellent

Comments: Performance from LaRC DAAC remained noisy, but a little less so, with higher dips than last month. The median daily worst is just below 3 x the requirement, so the rating remains "Good".

Performance from GSFC-MAX improved to aalmost as good as EDC on 31 March by increasing the window size. EDC has been stable since the middle of November. Performance is rated "Excellent" compared to the GSFC requirement.

However, performance from both GSFC-MAX and EDC dropped to around 40 mbps at the end of May. Other nodes at GSFC can still get over 90 mbps steadily to NCAR, by the same route, and were unaffected by whatever caused the change on 30 May.

9) FL, Univ. of Miami:

Rating: GSFC: Continued **Adequate**
LaRC: ↑ Good → **Excellent**

Teams: MODIS, MISR
Domain: rsmas.miami.edu
Web page: http://corn.eos.nasa.gov/performance/Net_Health/files/MIAMI.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	58.6	41.0	12.3	Abilene via MAX
GSFC-MODIS	36.1	17.2	7.1	Abilene via NISN / MAX
LaRC DAAC	26.1	16.5	5.3	Abilene via NISN / Chicago

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02	9.7	**Good**
GSFC	'03 , '04	15.1, 17.0	**Adequate**
LaRC DAAC	'02, '03, '04	1.1	**Excellent**

Comments: Performance from GSFC sources continues short term noisy (almost 5:1 ratio between daily best and worst), but long term stable since January. The rating remains "Adequate" compared to the revised requirements.
Performance from LaRC DAAC improved on 29 April, possibly due to NISN VC reconfig –- increases rating from LaRC to "Excellent".

---

10) MA, Boston Univ:

Ratings: EDC: Continued **Excellent**
LaRC: Continued **Excellent**

Domain: bu.edu
Teams: MODIS, MISR
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/BU.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EDC DAAC	18.1	16.4	13.8	Abilene via vBNS+ / Chicago
GSFC	40.5	39.0	20.1	Abilene via MAX
LaRC DAAC	26.7	20.5	11.8	Abilene via NISN / Chicago

Requirements:

Source Node	FY	mbps	Rating
EDC DAAC	'02, '03, '04	1.7, 2.0, 2.3	**Excellent**
LaRC DAAC	'02, '03, '04	1.2	**Excellent**

Comments: Performance from GSFC and EDC was been very stable from October '02 until May 19 – then performance dropped dramatically (median from GSFC was 84 mbps, and 55 mbps from EDC). Note that performance from GSFC to MIT, mostly via the same route, did not change. However, with the low requirement, the rating continues to be "Excellent".

Performance from LaRC is noisy, and was also unaffected on May 19. The LaRC requirement is small, so the rating continues to be "Excellent".

11) MA, MIT:

Rating: Continued **Excellent**

Teams: ICESAT
Domain: mit.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/MIT.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	60.6	49.4	23.9	Abilene via NISN / MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03-'04	5.5, 6.4	**Excellent**

Comments: Performance from GSFC to MIT has been very stable (in contrast with GSFC to BU); the rating remains "Excellent".

---

12) MD, Univ. of Maryland:

Rating: Continued **Excellent**

Teams: MODIS
Domain: umd.edu
Web Pages: http://corn.eos.nasa.gov/performance/Net_Health/files/UMD-SCF.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MAX	126.3	123.0	112.1	Direct Fiber OC-12 / MAX / SCF
EDC	126.4	105.1	57.8	VBNS+ / Chi / Abilene / MAX / SCF
NSIDC	38.9	38.7	37.9	Abilene / MAX / SCF

Requirements (QA only):

Source Node	FY	mbps	Rating
GSFC DAAC	'02 – '04	2.0	**Excellent**

Comments: Performance from GSFC-MAX dropped from 152 mbps on 8 April. Very stable from EDC and NSIDC.

---

13) MT, Univ of Montana:

Rating: Continued **Excellent**

Teams: MODIS
Domain: ntsg.umt.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/MONT.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EDC LPDAAC	27.9	24.2	12.1	VBNS+ / Chi / Abilene
GSFC	36.5	31.5	20.0	MAX / Abilene
NSIDC	36.3	28.1	14.8	CU / FRG / Abilene

Requirements:

Source Node	FY	kbps	Rating
EDC LPDAAC	'02, '03, '04	459, 675, 747	**Excellent**

Comments: Stable performance from all sources. With the low requirements, the rating continues as "Excellent".

14) NM, LANL:

Rating: ↓ Excellent → Good
Teams: MISR
Domain: lanl.gov
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/LANL.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	12.7	6.4	2.1	NISN SIP / MAE-W (Ames) / ESnet
GSFC	13.4	9.0	3.8	MAX / ESnet

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02, '03-'04	616, 1033	Good

Comments: Performance from both LaRC and GSFC dropped on 30 April (previously, median from LaRC was 11.4 mbps, and was 18.4 from GSFC), dropping rating to "Good"

---

15) NY, SUNY-SB:

Rating: Continued Excellent
Teams: CERES, MODIS
Domain: sunysb.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/SUNYSB.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	14.1	13.6	8.8	NISN SIP / MAX / Abilene / NYSERnet
GSFC	36.1	31.9	25.5	MAX / Abilene / NYSERnet

Requirements:

Source Node	FY	kbps	Rating
LaTIS	'02-'04	560	Excellent

Comments: Performance from LaTIS improved after the LaTIS test node was restored on 30 April – median had been 7.9 mbps. With the low requirement, the rating remains "Excellent". Performance from GSFC dropped to a median of 27 mbps on May 21 – seems stable at the new value.

---

16) OH, Ohio State Univ:

Rating: Continued Good
Teams: ICESAT
Domain: ohio-state.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/OHIO-STATE.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	54.5	32.5	10.9	Abilene via NISN / MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02 '03	5.7	Good

Comments: Performance noisy but stable since firewall installation at Ohio in September '02. Switched source to ICESAT-SCF at GSFC on 3 March – performance similar to GSFC-MAX node.

17) OR, Oregon State Univ:

Ratings: LaTIS: ↑ Adequate → Good
GSFC: Continued Excellent

Domain: oce.orst.edu
Teams: CERES, MODIS
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/ORST.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	14.5	12.0	7.9	Abilene via NISN / Chicago
JPL	23.0	17.9	8.8	CalREN / Abilene
GSFC	14.4	11.1	5.2	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'02, '03, '04	4.2, 6.1, 6.9	Good
GDAAC	'02 - '04	0.20	Excellent

Comments: Performance from LaTIS improved after the LaTIS test node was restored on 30 April – median had been 8.4 mbps. Performance stable from JPL and GSFC.

---

18) PA: Penn State Univ:

Rating: Continued Excellent

Teams:MISR
Domain: psu.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/PENN-STATE.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	26.8	19.2	9.8	Abilene via NISN / MAX
GSFC	75.0	74.7	66.5	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'02, '03-'04	2.1, 2.6	Excellent

Comments: Performance from LDAAC stable since 1 March; the rating remains "Excellent". Performance from GSFC has been extremely stable since 12 Feb.

---

19) TX: Univ. Texas - Austin

Rating: Continued Good

Teams: ICESAT
Domain: utexas.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/TEXAS.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	41.2	28.1	13.1	Abilene via NISN / MAX
GSFC-MAX	45.3	45.0	33.3	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03-'04	8.8, 10.4	Good

Comments: Performance from GSFC-MAX via Abilene remains very stable, but median dropped a bit (was 48 mbps) after installation of a firewall at Texas on 30 April. Performance is somewhat lower from ICESAT-SCF at GSFC. The rating remains "Good"

20) VA, LaRC - SAGE III MOC: Rating: Continued Excellent

Teams: SAGE III Domain: larc.nasa.gov
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/SAGE-MOC.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-SAFS	7.6	6.9	2.6	NISN SIP

Requirements:

Source Node	FY	kbps	Rating
GSFC SAFS	'02 – '04	200	Excellent

Comments: Upgrade of LaRC MOC machine on 19 Feb improved thruput (median was 3.9 mbps with old host).

---

21) WA, Pacific Northwest National Lab: Rating: ↓ Excellent → Good

Teams: MISR Domain: pnl.gov

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	15.1	13.1	2.9	ESnet via NISN - Chicago
GSFC	13.5	10.2	2.9	ESnet via MAX

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'02, '03-'04	0.9, 1.4	Good

Comments: Performance from LaRC to PNNL is very noisy, with a 5:1 ratio between typical daily best and worst. The median worst is now below 3 x the requirement, so the rating drops to "Good". Performance from GSFC improved on May 13 to be comparable to LARC – median was 6 mbps before that.

---

22) WA, Univ Washington: Rating: Continued Good

Teams: ICESAT Domain: washington.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/UW.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	46.2	36.9	13.1	Abilene via NISN/MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02 – '04	11.0	Good

Comments: Testing was switched on Mar 10 to ICESAT-SCF at GSFC. Performance is a bit lower than previously from GSFC-MAX via MAX / Abilene. The rating continues as "Good"

23) WI, Univ. of Wisconsin:

Ratings: GSFC: Continued Good
LARC: ↑ Low → Adequate

Teams: MODIS, CERES, AIRS
Domain: ssec.wisc.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/WISC.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MODIS	79.2	53.8	15.1	MAX / Abilene / Chi / MREN
LaTIS	7.2	6.9	4.8	NISN / Chicago / MREN
GSFC-MAX	67.5	49.9	19.2	MAX / Abilene / Chi / MREN
GSFC-NISN	15.9	14.8	8.7	NISN / Chicago / MREN

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03, '04	8.3, 13.1, 14.8	Good
LaRC Combined	'03	6.8	Adequate
LaRC Combined	'04	7.5	Low

Comments: Performance from all GSFC Sources has been stable since March.

Performance from LaTIS improved after the LaTIS test node was restored on 30 April – median had been 5.2 mbps. This raises LaRC rating to "Adequate" for FY '03, but it remains "Low" for FY '04.

However, the rating is based on the larger GSFC requirement, and therefore remains "Good".

---

24) Brazil, INPE:

Rating: ↑ Low→ Good
Team: HSB
Domain: inpe.br
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/INPE-HSB.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	3.8	3.6	2.4	MAX / Abilene / AMPATH / ANSP
GSFC	1.9	1.0	0.4	NISN / GBLX / ANSP

Requirements: (2 ISTs only)

Source Node	FY	mbps	Rating
GSFC EOC	'02 – '04	1.02	Good

Comments: Testing via two routes: commodity internet, and AMPATH. Performance improved over both routes on 14 May (Last month AMPATH median was 958 kbps, and commodity was 446 kbps) – rating increases to "Good"

25) Canada, Univ of Toronto: Rating: Continued Good

Team: MOPITT Domain: physics.utoronto.ca
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/TORONTO.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	1.43	1.42	1.11	NISN / GSFC / T1
LaRC DAAC	9.8	8.8	6. 2	NISN / Chicago / CA*net4
GSFC	1.43	1.43	1.06	NISN / T1
GSFC	28.1	28.0	27.8	MAX / Abilene / Chicago / CA*net4

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02 - '04	100	Excellent
GSFC EOC	'02 - '04	512	Good
Combined	'02 - '04	612	Good

Comments: Performance from both LDAAC (Source of QA data) and GSFC (Source for IST) via NISN dedicated T1 is very steady. Since both flows are combined together on the T1, the performance compared to the combined requirement rates as "Good".

Performance via CA*net4 from GSFC has been very steady since 19 August 2002, and it improved slightly on 12 May (median was 24.2 mbps last month). It would be rated "Excellent". Performance from LaRC via NISN / Chicago / CA*net4 / ONet got steadier – peak had been typ 13 mbps and dips typ 4.2 mbps – median about the same though.

---

26) IT, EC - JRC: Rating: Continued Adequate

Teams: MISR Domain: ceo.sai.jrc.it
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/JRC.html

Test Results:

Source Node	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
LaRC DAAC	812	700	106	NISN / UUnet / Milan
GSFC-NISN	856	801	209	NISN / UUnet / Milan

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02 – '04	517	Adequate

Comments: Performance has been stable, with the typical noisy performance from LaRC, and lower daily worst value.

27) Netherlands, KNMI:

Rating: Continued **Excellent**

Teams: OMI
Domain: nadc.nl
Web Pages: http://corn.eos.nasa.gov/performance/Net_Health/files/KNMI-OMIPDR.html
http://corn.eos.nasa.gov/performance/Net_Health/files/KNMI.html

Test Results:

Source → Dest	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MAX → OMI PDR Server	77.4	72.4	54.5	MAX / Abilene/ Chi / Surfnet
GSFC-MAX → KNMI Test Node	92.2	92.1	81.9	MAX / Abilene/ Chi / Surfnet
GSFC-NISN → KNMI Test Node	26.7	13.8	2.3	NISN / Chi / Surfnet

Requirements: (2 ISTs Only)

Source Node	FY	Mbps	Rating
GSFC	'04	1.024	**Excellent**

Comments: Performance via Abilene and Surfnet is very stable to both the OMI PDR server, and the KMNI Test node. This is exceptionally good performance for US to Europe! This flow now appears limited by a 100 mbps LAN – probably at KNMI.

Performance via NISN to Chicago is much lower and noisier than via Abilene. Therefore, it is important that all servers at GSFC which communicate with KNMI have access to MAX.

---

28) Russia, CAO (Moscow):

Rating: Continued **Excellent**

Teams: SAGE III
Domain: mipt.ru
Web Pages: http://corn.eos.nasa.gov/performance/Net_Health/files/CAO.html
http://corn.eos.nasa.gov/performance/Net_Health/files/LARC-SAGE.html

Test Results:

Source → Dest	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
CAO → LaRC	158	157	145	MIPT / TCnet / NISN SIP
CAO → LaRC	1301	1266	975	Commodity Internet
LaRC → CAO	156	139	131	NISN SIP / TCnet / MIPT
LaRC → CAO	1485	1345	685	Commodity Internet

Requirements:

Source → Dest	FY	kbps	Rating
CAO → LaRC	'02 – '04	26	**Excellent**
LaRC → CAO	'02 – '04	26	**Excellent**

Comments: Performance testing running since 1 November '02, with dual routes. Performance on NISN dedicated circuit to Moscow, then TCnet (NASA Russian ISP) tunnel to CAO ISP (MIPT) is extremely steady in both directions.

The dual route configuration also allows testing via the commodity internet route. Performance via that route is better, but is more variable, and also would rate Excellent. Internet performance improved about 200 kbps in both directions starting on March 31.

29) UK, London: (UCL SCF)

Rating: ↑ Adequate → **Good**

Teams: MODIS, MISR Domain: ucl.ac.uk
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/UCLSCF.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	6.2	6.1	2.4	NISN / MAX / Abilene / NY / JAnet
GSFC DAAC	16.2	16.1	13.2	MAX / Abilene / NY / JAnet

Requirements

Source Node	FY	mbps	Rating
LaRC DAAC	'02 – '04	1.03	Good

Comments: Testing to new test host initiated 1 May '03 (Previous host went down on19 March).

Performance to the new node is much higher from all sources (LDAAC median had been 1.5 mbps, 5.9 from GSFC). The rating thereby improves to "Good".

The current performance appears to now be window limited to the upgraded host. Next month the window size and/or the number of concurrent TCP streams will be increased to attempt to further improve performance.

---

30) UK, Oxford:

Rating: Continued **Excellent**

Teams: HIRDLS Domain: ox.ac.uk
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/OXFORD.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	3.4	3.4	3.1	MAX / Abilene / NY / JAnet

Requirements: (IST Only)

Source Node	FY	kbps	Rating
GSFC	'03 – '04	512	Excellent

Comments: Very steady short term performance continues, but occasional step changes: -- switching between 3.4 (most common), 4.0, or 5.1 mbps. But all these values rate as excellent compared to the IST requirement.

Test Results to other EOS HIRDLS UK Sites (Requirements TBD):
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/UK-RAL.html

Source → Dest	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC → RAL	11.5	5.1	1.6	MAX / Abilene / NY / JAnet

Comments: Thruput to RAL remains noisy, but quite good, with frequent step changes. The values above represent the aggregate since March